US 20170065878A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2017/0065878 A1**

Hong (43) **Pub. Date: Mar. 9, 2017**

(54) **BLOCK, METHOD AND USER TERMINAL FOR PROVIDING A GAME BY SETTING CONTROL RELATION BETWEEN THE BLOCK AND A TOY**

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(21) Appl. No.: **14/966,253**

(22) Filed: **Dec. 11, 2015**

(30) **Foreign Application Priority Data**

Sep. 9, 2015 (KR) 10-2015-0127651
Sep. 9, 2015 (KR) 10-2015-0127653

Publication Classification

(51) **Int. Cl.**
A63F 13/2145 (2006.01)
A63F 13/25 (2006.01)

(52) **U.S. Cl.**
CPC *A63F 13/2145* (2014.09); *A63F 13/25* (2014.09)

(57) **ABSTRACT**

A method and a user terminal for providing a game by setting control relation between a block and a movable toy. The block includes an input unit configured to receive a sensing value sensed by a sensor or data transmitted from an external device, an output unit configured to output the received sensing value or the received data, a communication unit configured to receive the data from the external device or transmit the sensing value to an outside device, through wireless communication, a power supply unit configured to supply a power to the input unit, the output unit and the communication unit and a pattern unit formed on a lower side of the block and configured to have a pattern which is an identification information of the block. Here, the block is disposed on a screen of a user terminal, control relation between the block and a toy or another block disposed on the screen of the user terminal is set, and the pattern unit is contacted with the screen of the user terminal so that the user terminal identifies the pattern unit.

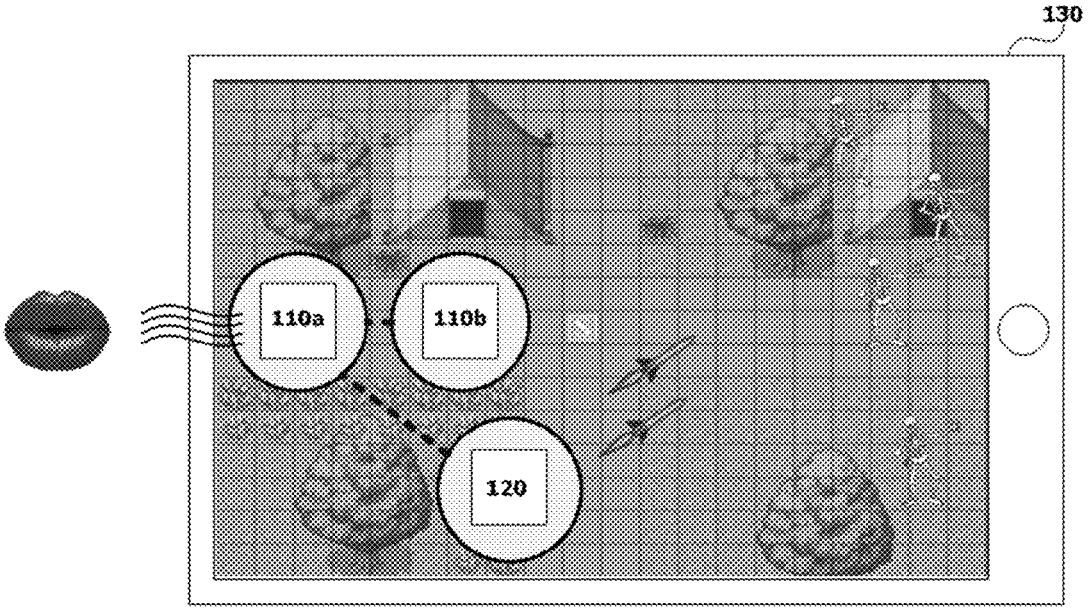


FIG. 1

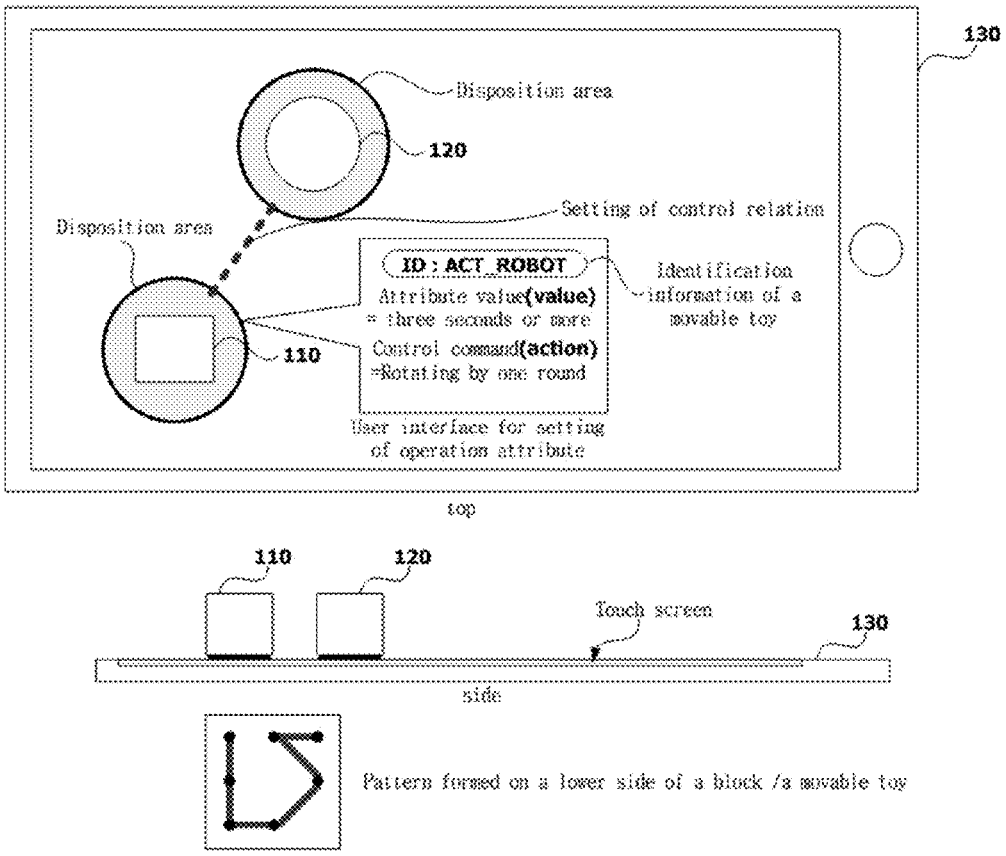

130
Disposition area
120
Setting of control relation
Disposition area
ID : ACT_ROBOT
Identification information of a movable toy
Attribute value(value)
= three seconds or more
Control command(action)
=Rotating by one round
110
User interface for setting of operation attribute
top
110
120
Touch screen
130
side
Pattern formed on a lower side of a block /a movable toy

FIG. 2

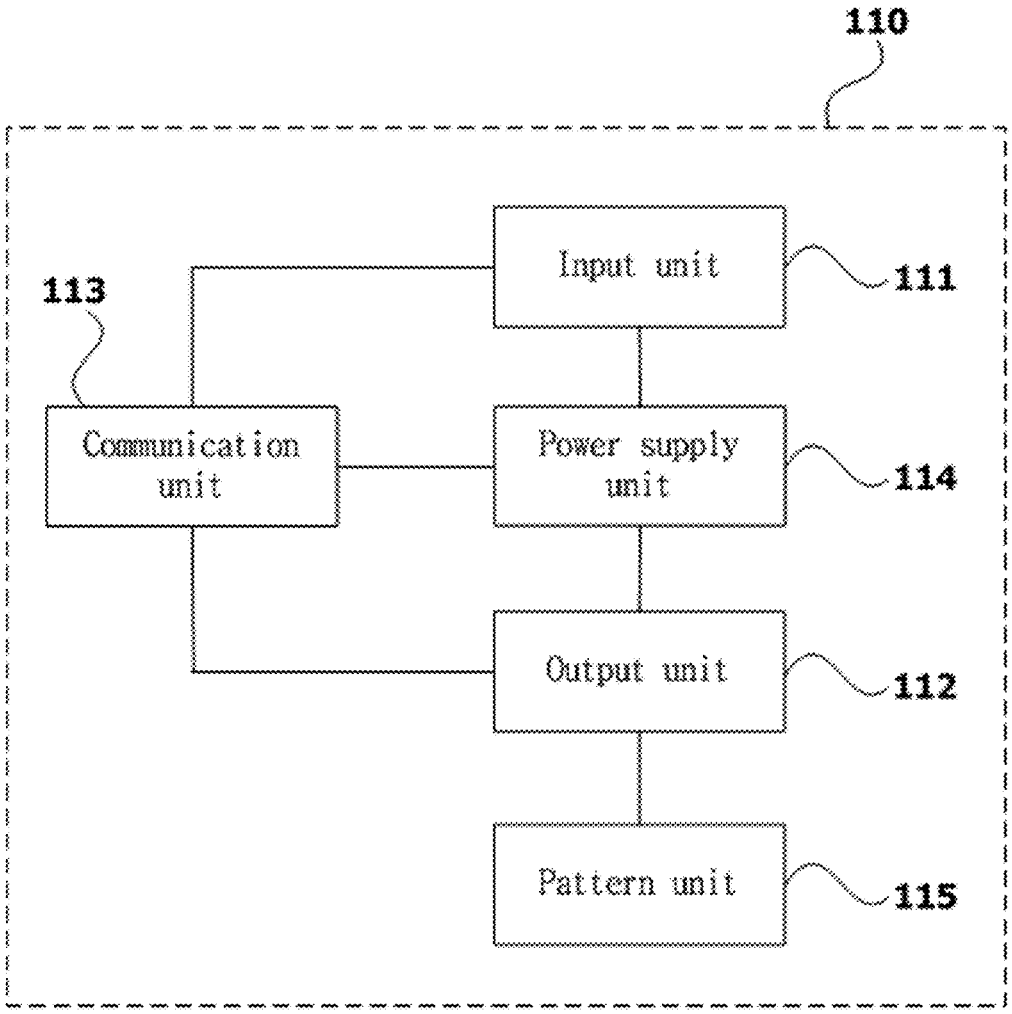

110
Input unit
111
113
Communication unit
Power supply unit
114
Output unit
112
Pattern unit
115

FIG. 3

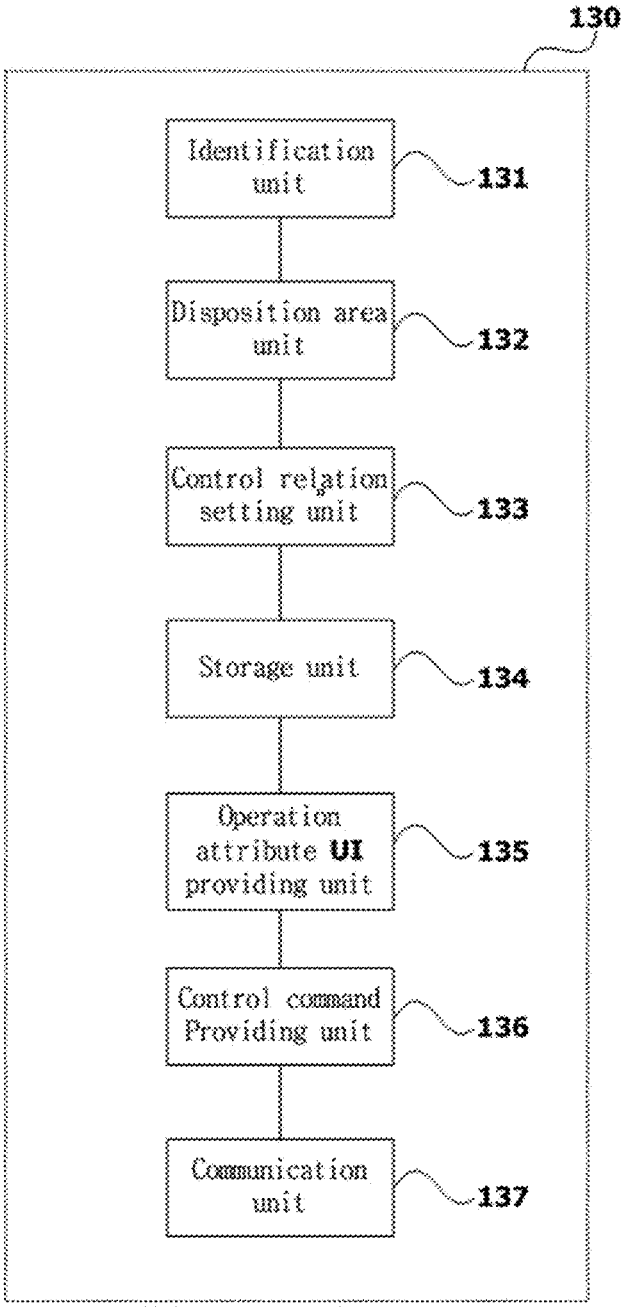

130
Identification unit
131
Disposition area unit
132
Control relation setting unit
133
Storage unit
134
Operation attribute UI providing unit
135
Control command Providing unit
136
Communication unit
137

FIG. 4

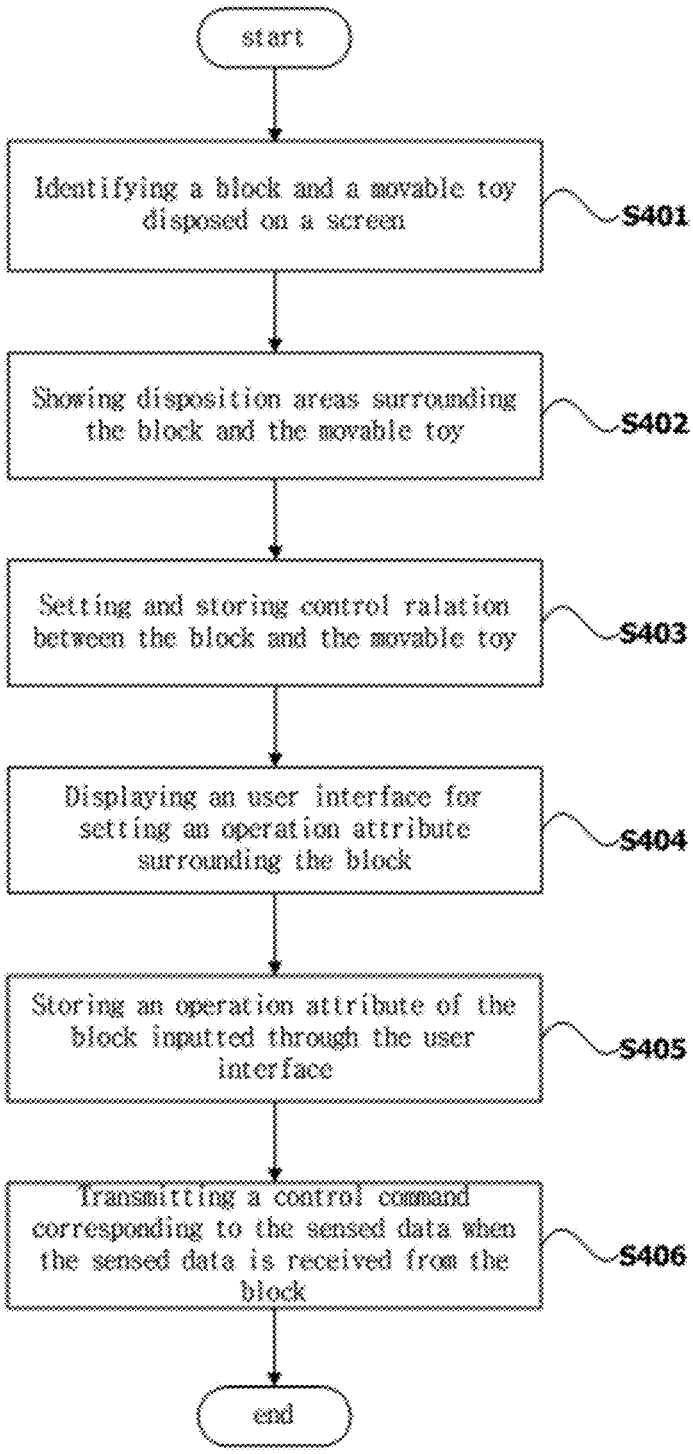

start
Identifying a block and a movable toy disposed on a screen
S401
Showing disposition areas surrounding the block and the movable toy
S402
Setting and storing control ralation between the block and the movable toy
S403
Displaying an user interface for setting an operation attribute surrounding the block
S404
Storing an operation attribute of the block inputted through the user interface
S405
Transmitting a control command corresponding to the sensed data when the sensed data is received from the block
S406
end

FIG. 5

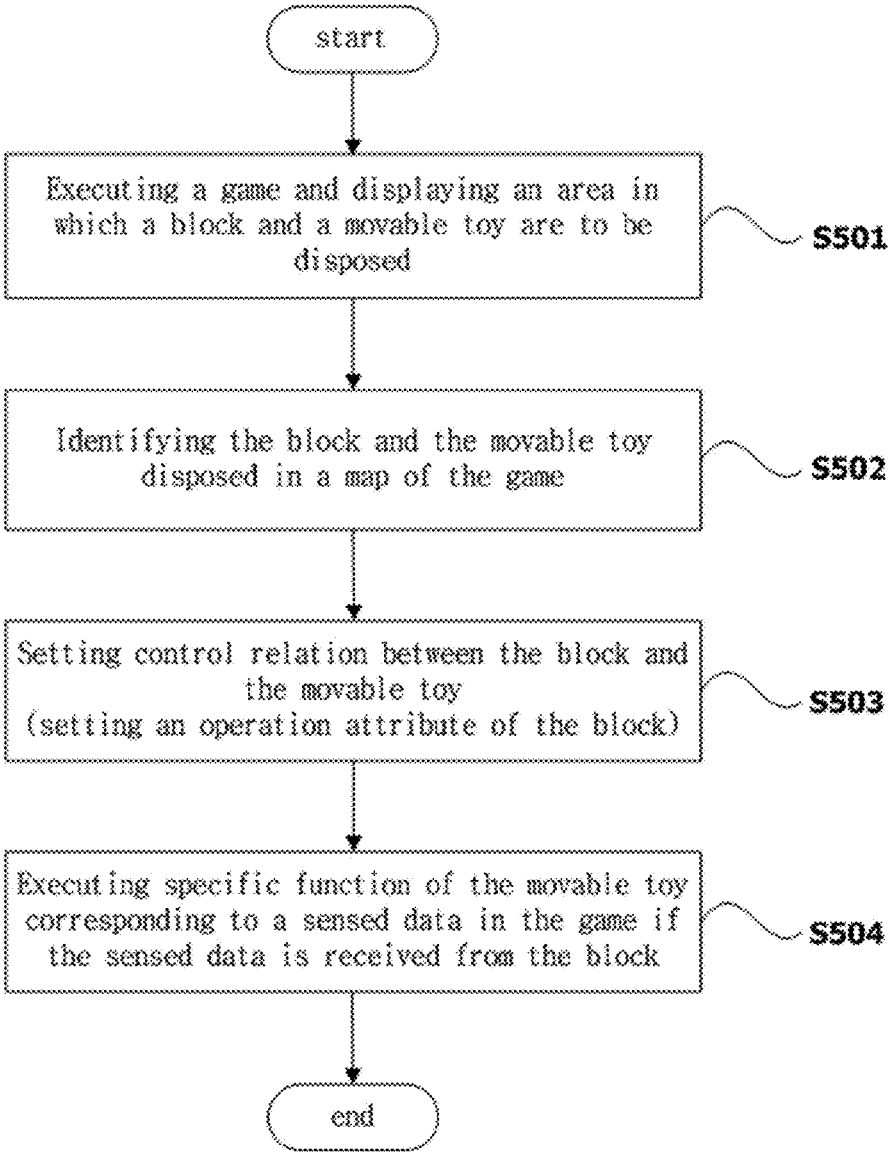

start
Executing a game and displaying an area in which a block and a movable toy are to be disposed
S501
Identifying the block and the movable toy disposed in a map of the game
S502
Setting control relation between the block and the movable toy (setting an operation attribute of the block)
S503
Executing specific function of the movable toy corresponding to a sensed data in the game if the sensed data is received from the block
S504
end

FIG. 6

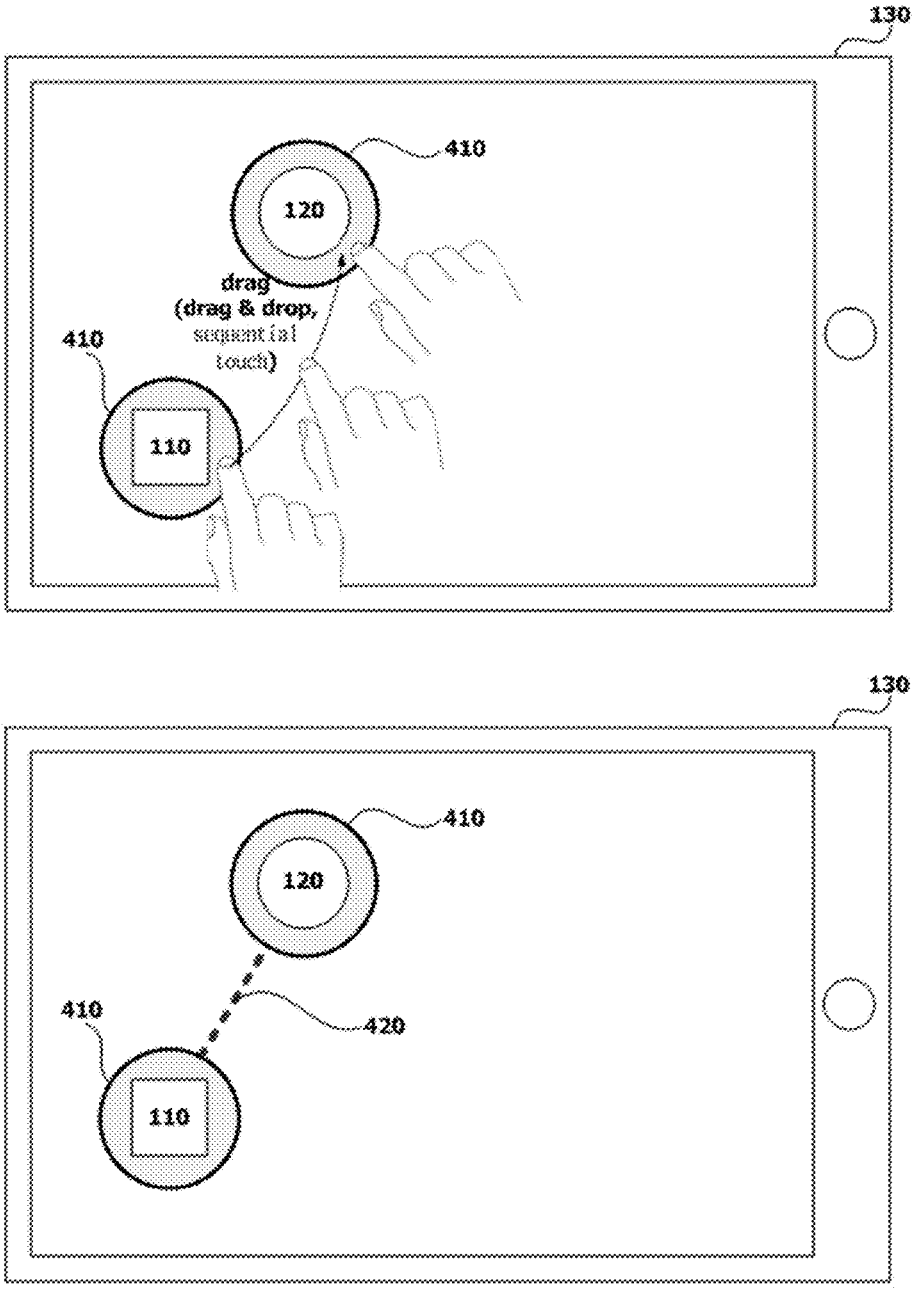

130
410
120
drag
(drag & drop,
sequential
touch)
410
110
130
410
120
410
420
110

FIG. 7

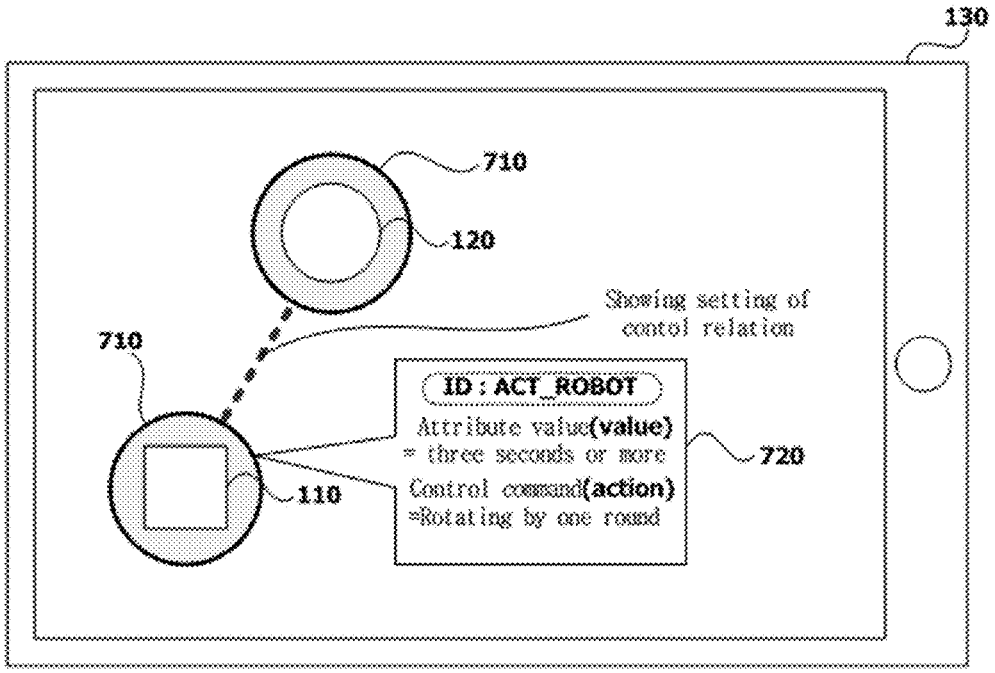

130
710
120
Showing setting of
contol relation
710
ID : ACT_ROBOT
Attribute value(value)
= three seconds or more
720
Control command(action)
=Rotating by one round
110

FIG. 8

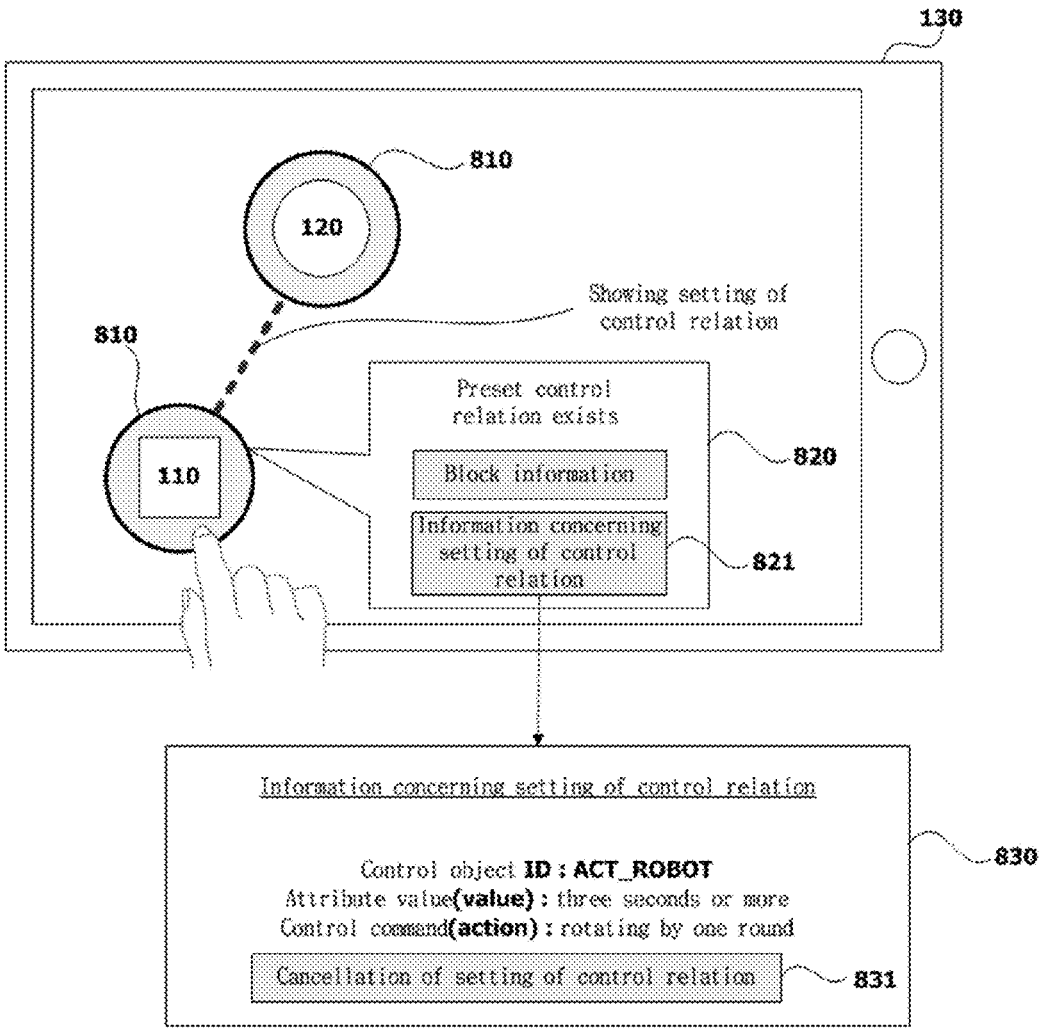

130
810
120
Showing setting of control relation
810
110
Preset control relation exists
820
Block information
Information concerning setting of control relation
821
Information concerning setting of control relation
Control object ID : ACT_ROBOT
Attribute value(value) : three seconds or more
Control command(action) : rotating by one round
Cancellation of setting of control relation
831
830

FIG. 9

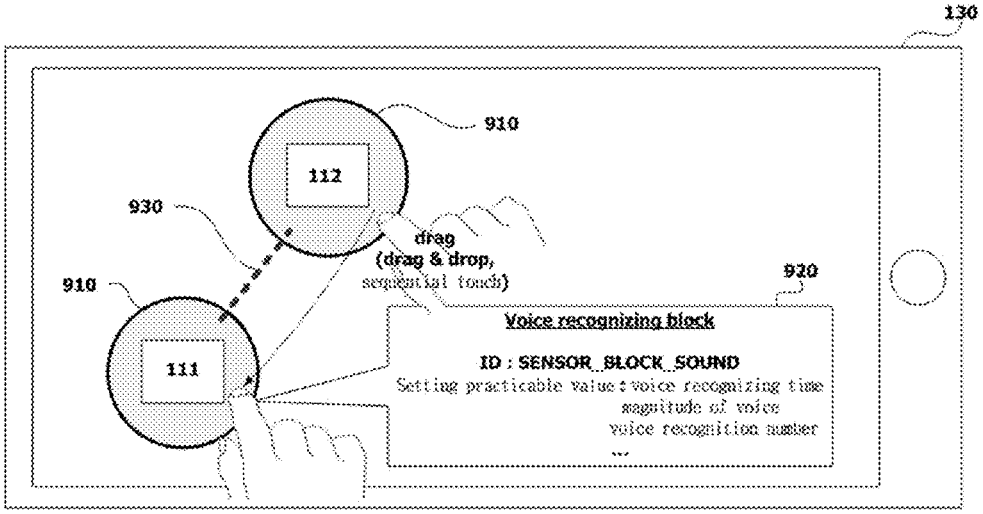
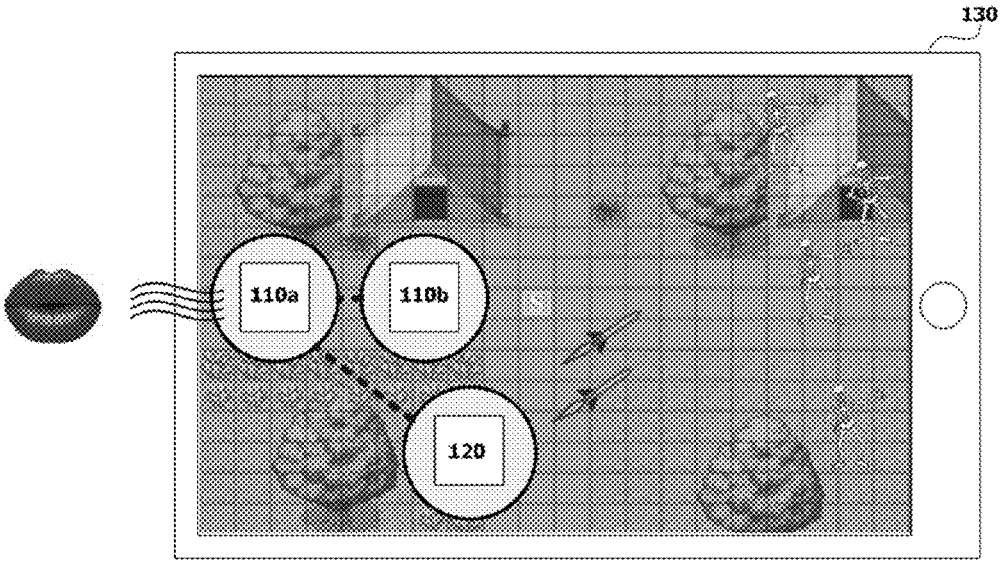

130
910
112
930
drag
(drag & drop,
sequential touch)
910
920
111
Voice recognizing block
ID : SENSOR_BLOCK_SOUND
Setting practicable value : voice recognizing time
magnitude of voice
voice recognition number
...

FIG. 10



BLOCK, METHOD AND USER TERMINAL FOR PROVIDING A GAME BY SETTING CONTROL RELATION BETWEEN THE BLOCK AND A TOY

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to Korean Application No. 10-2015-0127651 filed on Sep. 9, 2015 and Korean Application 10-2015-0127653 filed on Sep. 9, 2015. The applications are incorporated herein by reference.

TECHNICAL FIELD

[0002] The present disclosure relates to a technique for providing a game by setting control relation between a block and a movable toy.

BACKGROUND ART

[0003] A movable toy such as a robot can arouse user's curiosity according as a control means has diversified.

[0004] The control means such as a wireless remote controller or a wire remote controller, etc. was used in past, but techniques for controlling the movable toy using various sensors, e.g. technique for controlling the movable toy using a voice according to development of a voice recognition technique and so on, have been developed.

[0005] However, since the sensor is built in the movable toy, control of the movable toy is limited to control using only the sensor, and a sensing value for controlling the movable toy is predetermined. Accordingly, a user feels easily aversion about a play using the movable toy and it is difficult to perform creative learning using the movable toy.

SUMMARY

[0006] Accordingly, the present invention is provided to substantially obviate one or more problems due to limitations and disadvantages of the background art, and one embodiment of the invention provides a method of providing a creative game using a movable toy and a block for controlling the movable toy.

[0007] Another embodiment of the invention provides a method of providing intuitively control relation between a movable toy and a block for controlling the movable toy.

[0008] Still another embodiment of the invention provides a method of combining blocks to control a movable toy and a method of setting control relation between the combined blocks and the movable toy.

[0009] A block according to one embodiment of the invention includes an input unit configured to receive a sensing value sensed by a sensor or data transmitted from an external device; an output unit configured to output the received sensing value or the received data; a communication unit configured to receive the data from the external device or transmit the sensing value to an outside device, through wireless communication; a power supply unit configured to supply a power to the input unit, the output unit and the communication unit; and a pattern unit formed on a lower side of the block and configured to have a pattern which is an identification information of the block. Here, the block is disposed on a screen of a user terminal, control relation between the block and a toy or another block disposed on the screen of the user terminal is set, and the pattern unit is contacted with the screen of the user terminal so that the user terminal identifies the pattern unit.

[0010] A user terminal for providing a game by setting control relation between a block and a toy according to one embodiment of the invention includes an identification unit configured to identify one or more of the block and the toy disposed on a screen; a control relation setting unit configured to set control relation to control the identified toy according to an operation attribute of the identified block; and a control command providing unit configured to perform specific function corresponding to the block and the toy having the control relation in the game executed on the user terminal. Here, the operation attribute includes one or more of an identifier of the toy having the control relation with the block, data sensed by the block and a control command for controlling the toy according to the sensed data, and the control command providing unit performs specific function corresponding to the block and the toy in the game according to the sensed data and the control command.

[0011] A method of providing a game by setting control relation between a block and a toy through a user terminal according to one embodiment of the invention includes (a) identifying one or more of the block and the toy disposed on a screen; (b) setting control relation to control the identified toy according to an operation attribute of the identified block; and (c) performing specific function corresponding to the block and the toy between which the control relation is set in the game executed on the user terminal. Here, the operation attribute includes one or more of an identifier of the toy having the control relation with the block, data sensed by the block and a control command for controlling the toy according to the sensed data, and the specific function corresponding to the block and the toy is performed in the game according to the data sensed by the block and the control command in the step of (c).

[0012] In one embodiment of the invention, a user can enjoy creatively a game by using a movable toy and a block for controlling the movable toy.

[0013] Additionally, various blocks for controlling the movable toy use for the game, thereby incurring continuously user's curiosity.

[0014] Furthermore, the user may set easily and excitingly control relation between the movable toy and the block for controlling the movable toy.

[0015] Moreover, since the control relation between various blocks and the movable toy is set, a control means of the movable toy diversifies, and thus user's curiosity may be continuously incurred.

[0016] In addition, it is possible to perform creative learning through setting of the control relation between the movable toy and various blocks and setting of control relation for combination of the blocks.

[0017] Effect of the invention is not to effect mentioned above, and may include every effect capable of being inferred from description or claims of the invention.

BRIEF DESCRIPTION OF DRAWINGS

[0018] Example embodiments of the present invention will become more apparent by describing in detail example embodiments of the present invention with reference to the accompanying drawings, in which:

[0019] FIG. **1** is a view illustrating a system for providing a game using a block and a movable toy according to one embodiment of the invention;

[0020] FIG. **2** is a block diagram illustrating a block according to one embodiment of the invention;

[0021] FIG. **3** is a block diagram illustrating a user terminal according to one embodiment of the invention;

[0022] FIG. **4** is a flowchart illustrating a process of setting control relation between a block and a movable toy according to one embodiment of the invention;

[0023] FIG. **5** is a flowchart illustrating a process of providing a game using a block and a movable toy according to one embodiment of the invention;

[0024] FIG. **6** is a view illustrating a method of setting control relation between a block and a movable toy according to one embodiment of the invention;

[0025] FIG. **7** is a view illustrating a method of setting operation attribute of a block according to one embodiment of the invention;

[0026] FIG. **8** is a view illustrating a method of cancelling setting of control relation between a block and a movable toy according to one embodiment of the invention;

[0027] FIG. **9** is a view illustrating a method of setting control relation between blocks according to one embodiment of the invention; and

[0028] FIG. **10** is a view illustrating a screen of a user terminal providing a game using a block and a movable toy according to one embodiment of the invention.

DETAILED DESCRIPTION

[0029] In the present specification, an expression used in the singular encompasses the expression of the plural, unless it has a clearly different meaning in the context.

[0030] The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the invention. As used herein, it will be understood that the terms "comprises", "comprising,", "includes" and/or "including", when used herein, specify the presence of stated features, integers, steps, operations, elements, and/or configurations, but do not preclude the presence or addition of one or more other features, integers, steps, operations, elements, configurations, and/or groups thereof.

[0031] Also, terms such as "unit," "module," etc., as used in the present specification may refer to a part for processing at least one function or action and may be implemented as hardware, software, or a combination of hardware and software.

[0032] Hereinafter, various embodiments of the present invention will be described in detail with reference to accompanying drawings.

[0033] FIG. **1** is a view illustrating a system for providing a game using a block and a movable toy according to one embodiment of the invention.

[0034] The system **100** of the present embodiment may include a block **110**, a movable toy **120** and a user terminal **130**.

[0035] The block **110** may be disposed on a screen of the user terminal **130**, and may be set to have control relation with the movable toy **120** located on the screen of the user terminal **130**.

[0036] Here, control relation between the block **110** and the movable toy **120** or control relation between the block **110** and the block **110** may be set through a drag (drag and drop) between disposition areas displayed on the screen of the user terminal **130**.

[0037] Additionally, various kinds of the blocks **110** may exist.

[0038] For example, the block **110** may include a block having a sensor (a voice sensor, a motion sensor, a pressure sensor, a light sensor, etc.) and an output means (an LED, a speaker, a display, etc.) and so on.

[0039] An operation attribute may be set for the block **110**, to which the control relation is set, through a user interface provided on the user terminal **130**.

[0040] Here, 'operation attribute' may include one or more of an identification information of the movable toy **120** having control relation with the block **110**, data (attribute value) sensed by the block **110**, a condition for delivering a control command to the movable toy **120** and the control command for controlling the movable toy **120**.

[0041] In the event that the block **110** is set to have control relation with another block, the operation attribute may include at least one of an identification information of the another block having the control relation, data (attribute value) sensed by the block **110** and a condition for delivering the sensed data to the another block.

[0042] In one exemplary of the operation attribute, a movable toy **120** having an ID ACT_ROBOT can rotate by one round if user's voice (or mouth wind, etc.) is lasted for three seconds in the event that the operation attribute of the block **110** including a voice sensor is follows:

[0043] ID of the movable toy—ACT_ROBOT

[0044] Attribute value—three seconds or more

[0045] Control command (action)—rotating by one round.

[0046] The block **110** may transmit the sensed data to the user terminal **130** and include a wireless communication module capable of communicating wirelessly with the user terminal **130** to realize the transmission.

[0047] Specific pattern may be formed on a lower side of the block **110**, i.e. on a part of the block **110** contacted with a screen of the user terminal **130** so that the user terminal **130** can identify the block **110**. Here, the pattern may use an electrostatic way.

[0048] On the other hand, the movable toy **120** may be disposed on the screen of the user terminal **130** and be set to have control relation with the block **110** located on the screen of the user terminal **130**.

[0049] The movable toy **120** may receive a control command corresponding to an attribute value set in the operation attribute of the block **110** having the control relation therewith from the user terminal **130** and operate according to the received control command.

[0050] The movable toy **120** may include a wireless communication module for communicating wirelessly with the user terminal **120**. Specific pattern may be formed on a lower side of the movable toy **120**, i.e. on a part of the movable toy **120** contacted with the screen of the user terminal **130** so that the user terminal **130** can identify the movable toy **120**.

[0051] Here, the pattern for identifying the movable toy **120** may use an electrostatic way like the block **110**.

[0052] The control command for controlling the movable toy **120** may control an operation of the movable toy **120** or control so that the specific function corresponding to the movable toy **120** can be performed in a game being executed on the user terminal **130**.

[0053] The user terminal **130** may identify the block **110** or the movable toy **120** disposed on the screen, more particularly identify the block **110** or the movable toy **120** by

using the patterns (for example patterns using the electrostatic way) formed on lower sides of the block **110** and the movable toy **120**.

[0054] The user terminal **130** may show a disposition area on peripheral of the identified block **110** or movable toy **120** on the screen.

[0055] Here, the disposition area may be shown with an indication of notifying that the user terminal **130** identifies the block **110** or the movable toy **120** and have various shapes such as a circular shape or a rectangular shape, etc. depending on a shape of the lower side of the block **110** or the movable toy **120**.

[0056] Of course, as shown in FIG. **1**, the disposition area may have constant shape irrespective of the shape of the lower side of the block **110** or the movable toy **120**.

[0057] A user may touch the disposition area of the block **110** or the movable toy **120** with a touch means for preset time or more and then drag the touch means into a disposition area of the block **110** or the movable toy **120** desiring to set control relation according to guidance of the user terminal **130**, when the control relation between the block **110** and the movable toy **120** is set or when control relation between the blocks **110** is set. This will be described below.

[0058] The setting of the control relation may be also performed by using a drag and drop or a sequential touch (touching the disposition area of the movable toy after the disposition area of the block is touched).

[0059] In the event that the control relation is set, the user terminal **130** may store information concerning the setting of the control relation.

[0060] The user terminal **130** may show a user interface, which can set operation attribute of corresponding block **110**, surrounding of the identified block **110**, and store together the operation attribute inputted through corresponding user interface and the information concerning the setting of the control relation.

[0061] The user terminal **130** may be connected to the block **110** and the movable toy **120** through wireless communication.

[0062] In the event that the sensed data is received from the block **110**, the user terminal **130** may transmit a control command corresponding to the received data to the movable toy **120** based on the operation attribute of the block **110**.

[0063] The user terminal **130** may access to a service server (not shown) and then update information concerning the patterns of the block **110** and the movable toy **120** and information concerning a game using the block **110** and the movable toy **120**.

[0064] The user terminal **130** includes a processor and a memory connected to the processor. The memory may store program commands executable operation of the user terminal **130** in the embodiments.

[0065] The user terminal **130** may be a smart phone, a tablet computer and so on which has a touch screen and disposes the block **110** and the movable **120** on the screen thereof.

[0066] Furthermore, the user terminal **130** may be an IoT (Internet of Things) terminal, and an application, which is installed in the user terminal **130** and performs the above operation, may be produced by using a Hyper Text Markup Language HTML5.

[0067] FIG. **2** is a block diagram illustrating a block according to one embodiment of the invention.

[0068] The block **110** of the present embodiment may include an input unit **111**, an output unit **112**, a communication unit **113**, a power supply unit **114** and a pattern unit **115**.

[0069] The input unit **111** may include a sensor, e.g. a voice sensor, a motion sensor, a pressure sensor, a light sensor, etc.

[0070] Hereinafter, a block including the sensor will be referred to as a sensor block.

[0071] In another embodiment, the input unit **111** may receive data sensed by other block through the communication unit **113**.

[0072] Here, the data sensed by the other block is transmitted to the user terminal **130**, and the communication unit **113** receives the data from the user terminal **130**.

[0073] The output unit **112** may deliver data sensed through the input unit **111** including the sensor to the communication unit **113**.

[0074] In one embodiment, the output unit **112** may include an LED, a speaker, a display screen, a motor, etc.

[0075] For example, in the event that the output unit **112** is the LED, the LED may be on and off or turned on according to the data sensed by the other block inputted through the input unit **111**. In the event that the output unit **112** is the motor, a propeller combined with the motor may rotate depending on the data sensed by the other block inputted through the input unit **111**.

[0076] That is, the sensor block may transmit data sensed by the sensor to other block or the user terminal. An exclusive output block such as a block including the LED or the speaker may output a light through the LED or output specific sound according to the data transmitted from the other block (sensor block).

[0077] Of course, a block may include together the sensor and LED, etc.

[0078] The communication unit **113** may be connected to the user terminal **130** through wireless communication such as a zigbee, a Wi-Fi, a Bluetooth, etc.

[0079] The communication unit **113** may deliver the data sensed by the other block transmitted from the user terminal **130** to the input unit **111** in the event that the block **110** is the exclusive output block including the LED or the speaker, etc.

[0080] The communication unit **113** may transmit the sensed data delivered through the output unit **112** to the user terminal **130** in the event that the block **110** is the sensor block.

[0081] The power supply unit **114** may be a rechargeable battery chargeable repeatedly a power or a disposable battery, etc., and supply a power to the input unit **111**, the output unit **112** and the communication unit **113**.

[0082] The pattern unit **115** may be formed on the lower side of the block **110** and the lower side is disposed on the screen of the user terminal **130**. As a result, the user terminal **130** may identify the block **110** by detecting the pattern of the pattern unit **115**.

[0083] Here, the pattern unit **115** may plural nodes, wherein the pattern may be formed by connecting two or more nodes.

[0084] In one embodiment, the pattern unit **115** may employ the pattern using the electrostatic way.

[0085] The operation toy **120** having control relation with the block **110** may include one or more element of which an operation is similar to operation of the elements of the block **110** mentioned above.

[0086] FIG. **3** is a block diagram illustrating a user terminal according to one embodiment of the invention.

[0087] The user terminal **130** of the present embodiment may include an identification unit **131**, a disposition area unit **132**, a control relation setting unit **133**, a storage unit **134**, an operation attribute UI providing unit **135**, a control command providing unit **136** and a communication unit **137**.

[0088] The identification unit **131** may identify the block **110** and the movable toy **120** disposed on the screen.

[0089] Particularly, the identification unit **131** may identify the block **110** or the movable toy **120** by detecting the pattern formed on the lower side of the block **110** or the movable toy **120** disposed on the screen, wherein the pattern may use the electrostatic way.

[0090] The identification unit **131** may detect a disposition area of the identified block **110** or movable toy **120** on the screen.

[0091] To perform this operation, the identification unit **131** may detect the nodes used for the pattern formed on the lower side of the block **110** or the movable toy **120**, and determine location of a central node among the nodes to a location (coordinate) on which the block or the movable toy **120** is disposed.

[0092] The disposition area unit **132** may show corresponding disposition area surrounding of the block **110** or the movable toy **120** identified by the identification unit **131**.

[0093] Here, the disposition area unit **132** may calculate size of the disposition area by using disposition location of the block **110** or the movable toy **120** identified by the identification unit **131** and an area of the lower side of the identified block **110** or the identified movable toy **120**.

[0094] That is, the disposition location (coordinate) of the block **110** or the movable toy **120** is obtained by the identification unit **131** and the size and the shape of the lower side of the block **110** or the movable toy **120** contacted with the screen of the user terminal **130** are predetermined, and thus the disposition area unit **132** may calculate the size of the disposition area shown surrounding the identified block **110** or the identified movable toy **120**.

[0095] In one embodiment, the disposition area unit **132** may set the shape of the disposition area depending on the shape of the lower side of the block **110** or the movable toy **120**.

[0096] For example, the disposition area may be shown with circular shape in the event that the lower side of the block **110** or the movable toy **120** has circular shape, and may be shown with rectangular shape in the event that the lower side has rectangular shape.

[0097] The disposition area unit **132** may indicate the disposition area of the identified block **110** and the identified movable toy **120** on a location on which the block **110** and the movable toy **120** can be disposed, according to a game executed on the user terminal (game using the block and the movable toy).

[0098] Here, in the event that a block **110** and a movable toy **120** which it is impossible to use are disposed, the disposition area unit **132** may display a message for notifying the disposition of the block **110** and the movable toy **120** which it is impossible to use, based on information concerning a block **110** and a movable toy **120** usable in the game executed on the user terminal.

[0099] The control relation setting unit **133** may set the control relation between the block **110** and the movable toy **120** or the control relation between the blocks **110**.

[0100] A menu or specific button/icon, etc. may be selected for the purpose of setting the control relation before the control relation is set. The control relation setting unit **133** may display disposition areas of the block **110** and the movable toy **120** settable the control relation or disposition areas of the blocks **110** settable the control relation, of the block **110** and the movable toy **120** disposed on the screen, through a method of flickering with predetermined sound and so on.

[0101] The setting of the control relation between the block **110** and the movable toy **120** or the control relation between the blocks **110** may be performed by using a drag between the disposition areas shown on the screen, a drag and drop or a sequential touch.

[0102] Here, the movable toy **120** may be set to have the control relation with at least one block **110** (1:1 or 1:N), and the block **110** may be set to have also the control relation with one or more other blocks (1:1 or 1:N).

[0103] The storage unit **134** may store information concerning the setting of the control relation between the block **110** and the movable toy **120** or the blocks **110**.

[0104] The storage unit **134** may store an operation attribute with the information concerning the setting of the control relation in the event that the operation attribute of the block **110** is set through an operation attribute user interface described below.

[0105] The storage unit **134** may store information concerning games executed on the user terminal **130** and information concerning the block **110** and the movable toy **120** usable in respective games.

[0106] Additionally, the storage unit **134** may store information concerning maps of respective games and information concerning disposition location of the block **110** and the movable toy **120** in corresponding map.

[0107] The above information stored in the storage unit **134** may be compared with recent information of a service server (not shown) and its update may be determined according to the compared result, when the user terminal **130** accesses to the service server.

[0108] If the information of the service server is updated to recent information, the user terminal **130** may receive a message for notifying necessity of updating from the service server and access to the service server according to the user's request, and thus the information stored in the storage unit **134** may be updated.

[0109] The operation attribute UI providing unit **135** may display the user interface capable of inputting the operation attribute of the block **110** having the control relation with the movable toy **120** on the screen.

[0110] The control command providing unit **136** may transmit a control command defined in the operation attribute of corresponding block **110** to the movable toy **120** having the control relation with the block **110**, in the event that the block **110** (of which the operation attribute is set) and the movable toy **120** between which the control relation is set are disposed on the screen and the sensed data is transmitted from the block **110**.

[0111] The control command providing unit **136** may apply the block **110** and the movable toy **120** disposed on the screen to the game executed on the user terminal **130**.

[0112] That is, the control command providing unit **136** may control so that it is shown that the block **110** and the movable toy **120** perform specific function or operation in the game, by using the sensed data transmitted from the block **110** disposed on the screen and the control command transmitted to the movable toy **120**.

[0113] In one embodiment, if a character of the user in the game performs a mission with passing through a cave and a light sensor block is disposed on a location corresponding to the cave in a map of the game, dark inside scene of the cave may be displayed on the screen in view of the character's eyes when the character enters into the cave.

[0114] Then, in the event that the user throws a light (generated by using small lantern or a portable phone) having certain brightness on the light sensor block disposed on the screen, the light sensor block may sense the light and transmit data corresponding to the sensed result to the user terminal **130**. The control command providing unit **136** may control to light inside the cave in the game with brightness corresponding to the data for the character to perform stably the mission.

[0115] In another embodiment, the game may have a function of launching a missile to an enemy camp at a missile station, and voice sensor block and the movable toy may be disposed at a location of a missile launcher in the map of the game.

[0116] In this case, if the voice sensor block senses the user's voice (for example, "launching") meaning launching of the missile, the voice sensor block may transmit data corresponding to the sensed voice to the user terminal **130**. The control command providing unit **136** may control that the missile is launched at a location corresponding to the movable toy **120** in the game according to the data.

[0117] In this case, the control command providing unit **136** may control function (flickering of the LED in the movable toy) or operation of the movable toy **120** according to a control command of the movable toy **120** defined in the operation attribute of the voice sensor block, in the event that the data is received from the voice sensor block.

[0118] The communication unit **137** may communicate wirelessly with the block **110** and the movable toy **120** through various wireless communication methods and communicate wirelessly with the service server.

[0119] FIG. **4** is a flowchart illustrating a process of setting control relation between a block and a movable toy according to one embodiment of the invention.

[0120] The process in FIG. **4** may be performed by the user terminal **130** mentioned above. Hereinafter, the process in FIG. **4** by the user terminal **130** will be described.

[0121] In a step of S**401**, the user terminal **130** identifies the block **110** and the movable toy **120** disposed on the screen.

[0122] In a step of S**402**, the user terminal **130** displays disposition areas surrounding the identified block **110** and the identified movable toy **120**, respectively.

[0123] In a step of S**403**, the user terminal sets control relation between the block **110** and the movable toy **120** by using dragging between the disposition areas of the block **110** and the movable toy **120**, the drag and drop or the sequential touch and stores information concerning the set control relation.

[0124] In a step of S**404**, the user terminal **130** displays an user interface for setting an operation attribute of the block **110** surrounding the block **110** on the screen.

[0125] In a step of S**405**, the user terminal **130** stores the operation attribute of the block **110** inputted through the user interface.

[0126] In a step of S**406**, the user terminal **130** extracts a control command corresponding to a sensed data from the operation attribute of the block **110** and transmits the extracted control command to the movable toy **120**, in the event that the sensed data is received from the block **110**.

[0127] FIG. **5** is a flowchart illustrating a process of providing a game using a block and a movable toy according to one embodiment of the invention.

[0128] The process in FIG. **5** may be performed by the user terminal. Hereinafter, the process in FIG. **5** by the user terminal **130** will be described.

[0129] In a step of S**501**, the user terminal **130** executes a game selected by a user and displays an area where a block **110** and a movable toy **120** used in the game are disposed on a screen.

[0130] In a step of S**502**, the user terminal **130** identifies the block **110** and the movable toy **120** disposed on the screen, i.e. in a map of the game, if the block **110** and the movable toy **120** are disposed on corresponding areas.

[0131] In a step of S**503**, the user terminal **130** displays disposition areas of the identified block **110** and the identified movable toy **120** and sets control relation between the block **110** and the movable toy **120** through the drag, the drag and drop or the sequential touch by the user.

[0132] Here, an operation attribute of the block **110** may be set when the control relation is set.

[0133] In a step of S**504**, the user terminal **130** operates specific function of the movable toy **120** corresponding to a received data in the game, in the event that data sensed by a sensor in the block **110** is received from the block **110** while the game is being executed.

[0134] Here, the specific function of the block **110** corresponding to the received data may be performed in the game.

[0135] FIG. **6** is a view illustrating a method of setting control relation between a block and a movable toy according to one embodiment of the invention.

[0136] A user may verify information concerning the block **110** and the movable toy **120** and request setting of a control relation by selecting predetermined menu or button for the setting of the control relation.

[0137] If the user inputs the request of the setting of the control relation between the block **110** and the movable toy **120**, the user terminal **130** may display the block **110** and the movable toy **120** between which the control relation can be set.

[0138] In this case, the user terminal **130** may display disposition areas **610** of the block **110** and the movable toy **120**, between which the control relation can be set, through flickering with predetermined color, or further preset sound.

[0139] The user may drag the disposition area of the block **110** into the disposition area of the movable toy **120** as shown in FIG. **6**, or drag the disposition area of the movable toy **120** into the disposition area of the block **110**, thereby setting the control relation between the block **110** and the movable toy **120**.

[0140] Here, the control relation may be set by the drag, the drag and drop or the sequential touch.

[0141] A control relation setting line **620** for notifying that the setting of the control relation is completed may be shown between the block **110** and the movable toy **120** between which the control relation is set, as shown in FIG. **6**.

[0142] FIG. **7** is a view illustrating a method of setting operation attribute of a block according to one embodiment of the invention.

[0143] The block **110** and the movable toy **120** may be disposed on the screen of the user terminal **130**, the user terminal **130** identifies the block **110** and the movable toy **120**, and setting of control relation between the block **110** and the movable toy **120** is completed.

[0144] As shown in FIG. **7**, disposition areas **710** may be displayed surrounding the identified block **110** and the identified movable toy **120**, respectively.

[0145] If the user has touched continuously the disposition area **710** of the block **110** for preset time or more after the control relation between the block **110** and the movable toy **120** is set, the user terminal **130** may display a user interface **720** for setting the operation attribute of the block **110** on the screen as shown in FIG. **7** and receive a setting value for the operation attribute from the user.

[0146] FIG. **8** is a view illustrating a method of cancelling setting of control relation between a block and a movable toy according to one embodiment of the invention.

[0147] In FIG. **8**, the block **110** and the movable toy **120** are disposed on the screen of the user terminal **130**, the user terminal **130** identifies the block **110** and the movable toy **120**, and disposition areas **810** are disposed surrounding the identified block **110** and the identified movable toy **120**, respectively.

[0148] If the user has touched continuously the disposition area **810** of the block **110** or the movable toy **120** for preset time or more, the user terminal **130** may display a user interface **820** for verifying information concerning the block **110** or the movable toy **120** and information concerning the setting of the control relation on the screen as shown in FIG. **8**.

[0149] If the user selects a control relation setting button **821**, the user terminal **130** may display information **830** concerning the block **110** or the movable toy **120** of which the control relation is set at present on the screen.

[0150] In the event that the user selects a control relation setting cancellation button **831**, the user terminal **130** may cancel the setting of the control relation between the block **110** and the movable toy **120**.

[0151] That is, if the setting of the control relation is cancelled at any one of the block **110** and the movable toy **120**, every setting of the control relation for the block **110** and the movable toy **120** may be cancelled.

[0152] In the event that the setting of the control relation between the block **110** and the movable toy **120** is cancelled, the operation attribute of the block **110** may be initialized.

[0153] FIG. **9** is a view illustrating a method of setting control relation between blocks according to one embodiment of the invention.

[0154] In FIG. **9**, a first block **111** and a second block **112** are disposed on the screen of the user terminal **130**, the user terminal **130** identifies the blocks **111** and **112**, and disposition areas **910** are displayed surrounding the identified blocks **111** and **112**, respectively.

[0155] In an embodiment in FIG. **9**, the first block **111** may be a voice sensor block and the second block **112** may be an LED block.

[0156] In the event that the user has touched continuously the disposition area **910** of the voice sensor block **111** for preset time or more, the user terminal **130** may display information **920** concerning the voice sensor block **111** on the screen.

[0157] Here, if a block or a movable toy having control relation with the voice sensor block **111** exists, the user terminal **130** may display further information concerning setting of the control relation.

[0158] Subsequently, the control relation between the blocks **111** and **112** may be set by dragging the disposition area of the LED block **112** into the disposition area of the voice sensing block **111**.

[0159] Of course, the control relation may be set by dragging the disposition area of the voice sensor block **111** into the disposition area of the LED block **112**.

[0160] Here, the control relation may be set through the drag and drop or the sequential touch as well as the dragging.

[0161] A control relation setting line **930** for notifying that the setting of the control relation is completed may be shown between the voice sensor block **111** and the LED block **112** between which the control relation is set, as shown in FIG. **9**.

[0162] Then, in the event that the user has touched continuously the disposition area **910** of the LED block **112** for preset time or more, the user terminal **130** may display a user interface (not shown) for setting operation attribute of the LED block **112** on the screen.

[0163] Here, since the block having the control relation is the voice sensor block **111**, the user interface may include an item for setting step by step brightness of the LED block **112** or setting differently color an emitted light according to level of sensed voice.

[0164] Since cancellation of the setting of the control relation between the blocks is the same as cancellation of the setting of the control relation in FIG. **8**, any further description concerning the same cancellation will be omitted.

[0165] FIG. **10** is a view illustrating a screen of a user terminal providing a game using a block and a movable toy according to one embodiment of the invention.

[0166] In one embodiment, when the game is progressed by using the block **110** and the movable toy **120**, the game is played after control relation between the block **110** and the movable toy **120** is set by disposing the block **110** and the movable toy **120** on the screen before the game starts, and disposition location of the block **110** and the movable toy **120** may be properly adjusted according to a map of the game.

[0167] In another embodiment, if the disposition location is displayed with the map on the screen after the game starts, the control relation may be set after the block **110** and the movable toy **120** are disposed on the disposition location.

[0168] Of course, the disposition location of the block **110** and the movable toy **120** may be freely disposed on the screen when the control relation is set.

[0169] Here, it is impossible to set the disposition location of the block **110** and the movable toy **120** at specific location such as an ocean in the map of the game.

[0170] In FIG. **10**, the game is executed by using a voice sensor block **110***a*, an LED block **110***b* and the movable toy **120**.

[0171] A power station for supplying a power for launching a missile is achieved by setting the control relation between the voice sensor block **110***a* and the LED block **110***b*.

[0172] For example, the user throws mouth wind to the voice sensor block **110***a*, the voice sensor block **110***a* senses the mouth wind and transmits data concerning the sensed result to the user terminal **130**.

[0173] The user terminal **130** may transmit the data transmitted from the voice sensor block **110***a* to the LED block **110***b*, and the LED block **110***b* may light the LED with color or brightness corresponding to the data transmitted from the user terminal **130**.

[0174] Here, the user terminal **130** may display the game where energy of a generator realized with combination of the voice sensor block **110***a* and the LED block **110***b* is charged depending on the data transmitted from the voice sensor block **110***a*.

[0175] If the energy charged to the generator is under predetermined value, the user terminal **130** may output a message or a sound for notifying that the energy of the generator should be charged by throwing mouth wind.

[0176] In the event that the energy of the generator is charged through throwing of mouth wind and the user selects a missile launching button shown in the game, the user terminal **130** may launch the missile to an enemy camp based on a location at which the movable toy is disposed, in the game.

[0177] Elements of the embodiment described above may be easily understood in view of a process.

[0178] That is, respective elements may be understood through corresponding process. Furthermore, a process in the embodiments described above may be easily understood in view of elements of the apparatus.

[0179] Also, the technical features described above can be implemented in the form of program instructions that may be performed using various computer means and can be recorded in a computer-readable medium.

[0180] Such a computer-readable medium can include program instructions, data files, data structures, etc., alone or in combination.

[0181] The program instructions recorded on the medium can be designed and configured specifically for the present invention or can be a type of medium known to and used by the skilled person in the field of computer software.

[0182] Examples of a computer-readable medium may include magnetic media such as hard disks, floppy disks, magnetic tapes, etc., optical media such as CD-ROM's, DVD's, etc., magneto-optical media such as floptical disks, etc., and hardware devices such as ROM, RAM, flash memory, etc.

[0183] Examples of the program of instructions may include not only machine language codes produced by a compiler but also high-level language codes that can be executed by a computer through the use of an interpreter, etc.

[0184] The hardware mentioned above can be made to operate as one or more software modules that perform the actions of the embodiments of the invention, and vice versa.

[0185] The embodiments of the invention described above are disclosed only for illustrative purposes. A person having ordinary skill in the art would be able to make various modifications, alterations, and additions without departing from the spirit and scope of the invention, but it is to be appreciated that such modifications, alterations, and additions are encompassed by the scope of claims set forth below.

1. A block comprising:
an input unit configured to receive a sensing value sensed by a sensor or data transmitted from an external device;
an output unit configured to output the received sensing value or the received data;
a communication unit configured to receive the data from the external device or transmit the sensing value to an outside device, through wireless communication;
a power supply unit configured to supply a power to the input unit, the output unit and the communication unit; and
a pattern unit formed on a lower side of the block and configured to have a pattern which is an identification information of the block,
wherein the block is disposed on a screen of a user terminal, control relation between the block and a toy or another block disposed on the screen of the user terminal is set,
and the pattern unit is contacted with the screen of the user terminal so that the user terminal identifies the pattern unit.

2. The block of claim **1**, wherein the pattern unit uses an electrostatic way.

3. The block of claim **1**, wherein an operation attribute of the block is set through the user terminal,
and wherein the operation attribute includes a condition and a control command for controlling the toy or the another block having the control relation with the block.

4. A user terminal for providing a game by setting control relation between a block and a toy, the user terminal comprising:
an identification unit configured to identify one or more of the block and the toy disposed on a screen;
a control relation setting unit configured to set control relation to control the identified toy according to an operation attribute of the identified block; and
a control command providing unit configured to perform specific function corresponding to the block and the toy having the control relation in the game executed on the user terminal,
wherein the operation attribute includes one or more of an identifier of the toy having the control relation with the block, data sensed by the block and a control command for controlling the toy according to the sensed data,
and the control command providing unit performs specific function corresponding to the block and the toy in the game according to the sensed data and the control command.

5. The user terminal of claim **4**, wherein the control relation is set through a drag, a drag and drop or a sequential touch of areas in which the block and the toy are disposed.

6. The user terminal of claim **4**, wherein the identification unit identifies the block and the toy by using patterns formed on lower sides of the block and the toy, respectively.

7. The user terminal of claim **4**, further comprising:
a disposition area unit configured to show disposition areas surrounding the block and the toy, the disposition areas meaning areas in which the block and the toy are disposed.

8. The user terminal of claim **4**, wherein the control relation setting unit shows completion of the setting of the control relation with a line between disposition areas for the block and the toy in the event that the control relation is set between the block and the toy.

9. The user terminal of claim **4**, further comprising:

an operation attribute UI providing unit configured to display a user interface for setting the operation attribute of the block or cancelling the set control relation on the screen,

wherein the user interface sets one or more of conditions including number and size of the data sensed by the block and sets the control command to control the toy when the set condition is satisfied.

10. The user terminal of claim **4**, wherein the control command providing unit transmits a control command defined in the operation attribute to the toy having the control relation with the block based on the operation attribute of the block, in the event that the data sensed by the block is received.

11. A method of providing a game by setting control relation between a block and a toy through a user terminal, the method comprising:

(a) identifying one or more of the block and the toy disposed on a screen;

(b) setting control relation to control the identified toy according to an operation attribute of the identified block; and

(c) performing specific function corresponding to the block and the toy between which the control relation is set in the game executed on the user terminal,

wherein the operation attribute includes one or more of an identifier of the toy having the control relation with the block, data sensed by the block and a control command for controlling the toy according to the sensed data,

and the specific function corresponding to the block and the toy is performed in the game according to the data sensed by the block and the control command in the step of (c).

12. The method of claim **11**, wherein the control relation is set through a drag, a drag and drop or a sequential touch of areas in which the block and the toy are disposed.

13. The method of claim **11**, wherein in the step of (a), the block and the toy are identified by using patterns formed on lower sides of the block and the toy, respectively.

14. The method of claim **11**, wherein in the step of (c), a control command defined in the operation attribute is transmitted to the toy having the control relation with the block based on the operation attribute of the block, in the event that the data sensed by the block is received.

15. A computer program stored in a medium including a command for performing the method of claim **11**.

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